6WMM7/6WMM7-1

USER'S MANUAL

1. **Support Dual BIOS(Optional).**
2. **Support ISA Bus Slot (Optional).**
3. **Support YAMAHA YMF744 Sound Chip (Optional).**
4. **Support Suspend To RAM Function.**
5. **System power on by PS/2 Mouse: First, enable this function in CMOS Setup, then you can power on the system by double clicking the right or left button of your PS/2 Mouse.**
6. **System power on by Keyboard: If your ATX power supply supports larger than 300 mA 5V Stand-By current (depends on the specification of keyboards), you can power on your system by entering password from the Keyboard after setting the "Keyboard power on" jumper and password in CMOS Setup(Optional).**
7. **Support 3 steps ACPI LED selectable.**
8. **Support Modem Ring-On (Include internal Modem and external modem on COM A and COM B).**
9. **Support Wake-up On LAN (Your ATX power supply must support larger than 720 mA 5V Stand-By current).**
10. **Support TV/DFP(Digital Flat Panel) function by TV/DFP daughter card (Optional).**
11. **Support AMR function.**

INTEL® Celeron ™ Socket 370 Processor MAIN BOARD
REV. 1.5 First Edition

R-15-01-090722

July 22, 1999 Taipei, Taiwan

I. Quick Installation Guide :

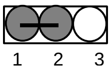
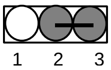
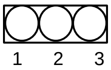
CPU SPEED SETUP

The system bus frequency can be switched between 66MHz and 100MHz by adjusting JP1. The CPU Frequency is control by BIOS.

The CPU speed must match with the frequency RATIO. It will cause system hanging up if the frequency RATIO is higher than that of CPU.

Set System Bus Speed (See Figure-1)

JP1 (Select the system speed between 66MHz / 100MHz and Auto)

1-2 Close		**Set system speed to Auto** - auto detect system speed.
2-3 Close		**Set system speed to 66 MHz** - system always run at 66MHz FSB (Front Side Bus).
1-2-3 Open		**Set system speed to 100 MHz** - system always run at 100MHz FSB (Front Side Bus).

★**Note: Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, SDRAM, Cards…etc.**

JP1: System Bus Speed

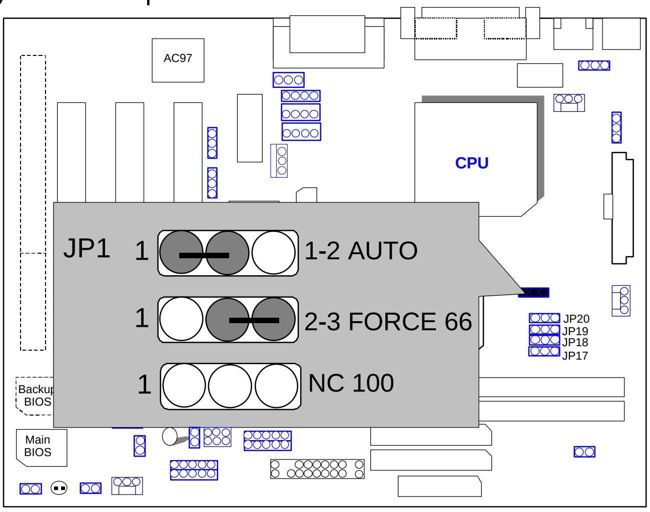


Figure-1

JP17~JP20 (Optional) (See Figure-2)

CPU	SDRAM	PCI	JP20	JP19	JP18	JP17
AUTO	100	33	open	open	2-3	2-3
150	150	37.5	1-2	2-3	2-3	1-2
140	140	35	2-3	2-3	2-3	1-2
133.3	133.3	44.43	2-3	1-2	1-2	2-3
133.3	133.3	33.32	1-2	1-2	1-2	2-3
124	124	41.33	1-2	2-3	1-2	2-3
120	120	40	2-3	2-3	1-2	2-3
114.99	114.99	38.33	2-3	1-2	2-3	1-2
105	105	35	2-3	1-2	2-3	2-3
100.9	100.9	33.63	1-2	2-3	2-3	2-3
100.23	100.23	33.41	2-3	2-3	2-3	2-3
95	95	31.67	1-2	1-2	1-2	1-2
90	90	30	2-3	1-2	1-2	1-2
83.31	124.96	41.65	1-2	2-3	1-2	1-2
75	112.5	37.5	2-3	2-3	1-2	1-2

70	105	35	1-2	1-2	2-3	1-2
66.89	100.33	33.44	1-2	1-2	2-3	2-3

★ **Note: 1. If you want to set CPU frequency to "AUTO", JP1 must be "1-2 short".**

2. If you want to set force 66MHz, JP1 must be "2-3 short". If you want to set force 100MHz, JP1 must be "1-2-3 open".

3. We don't recommend you to set up your system speed to 70,75,83,90,95,105,115,120,124,133,140 or 150MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 70,75,83,90,95,105,115,120,124,133,140 or 150MHz properly will depend on your hardware configurations: CPU, SDRAM, Cards, etc.

JP17/ JP18 / JP19 / JP20 (Optional) :

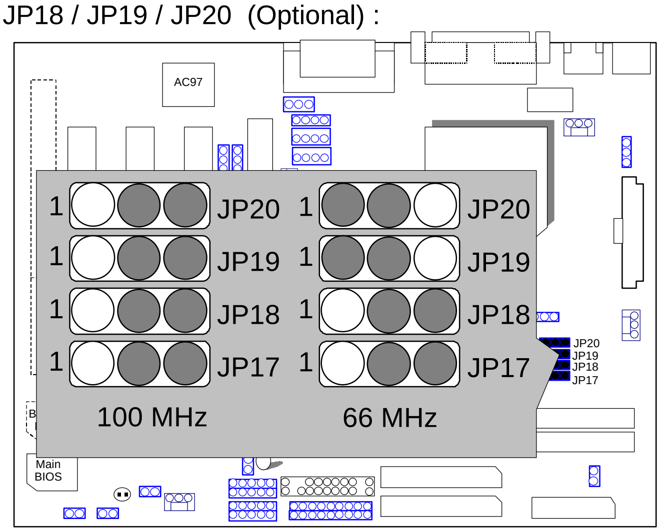
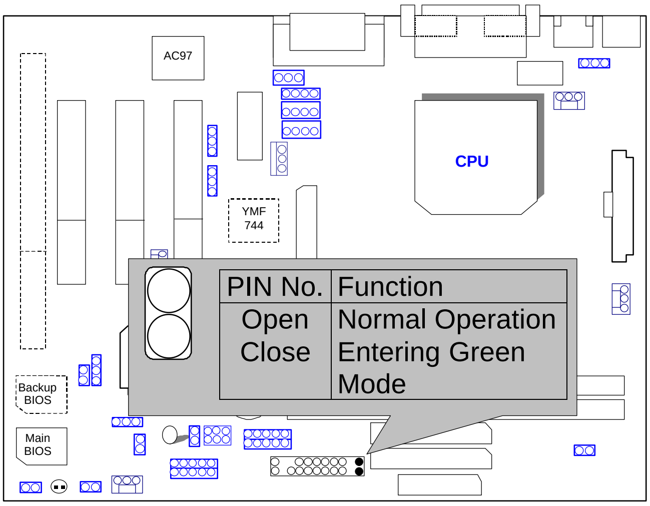


Figure-2

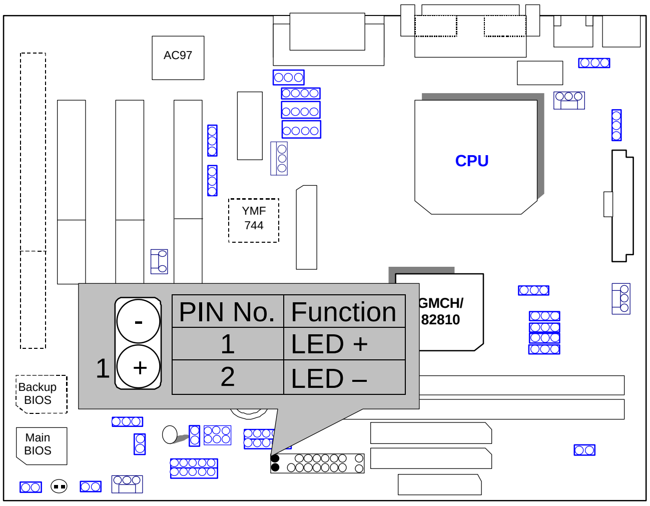
II. Jumper setting :

GN : Green Function Switch

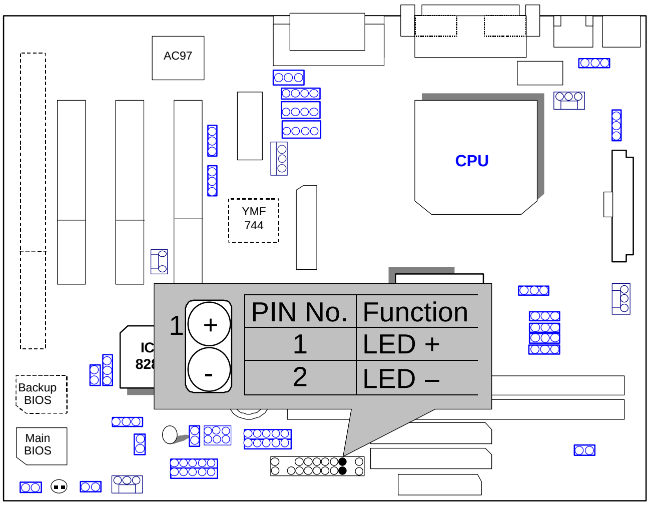


PIN No.	Function
Open	Normal Operation
Close	Entering Green Mode

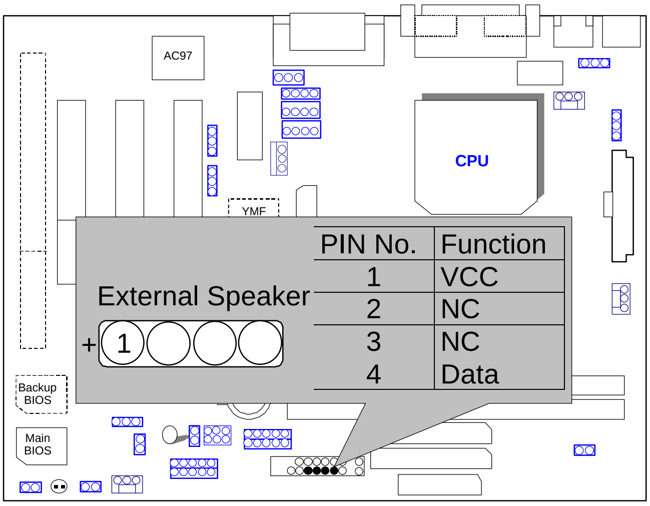
GD : Green Function LED



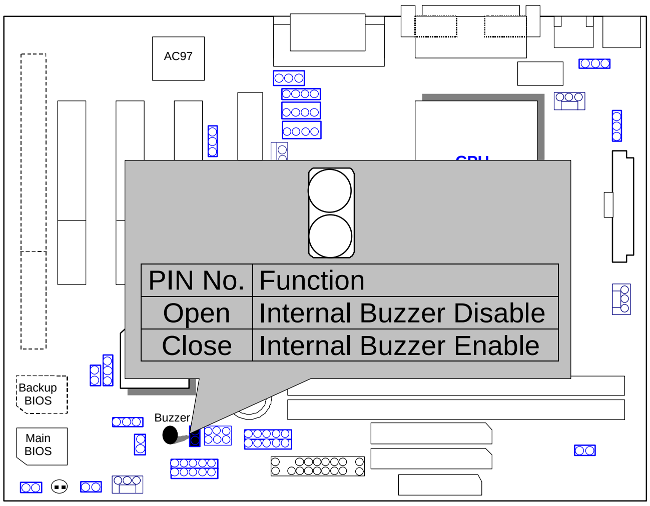
HD : IDE Hard Disk Active LED



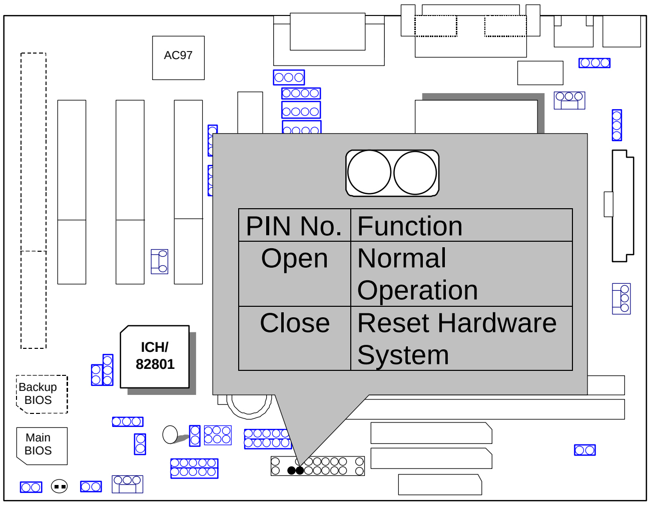
SPKR: External Speaker Connector



J16: Buzzer Enable (Optional)

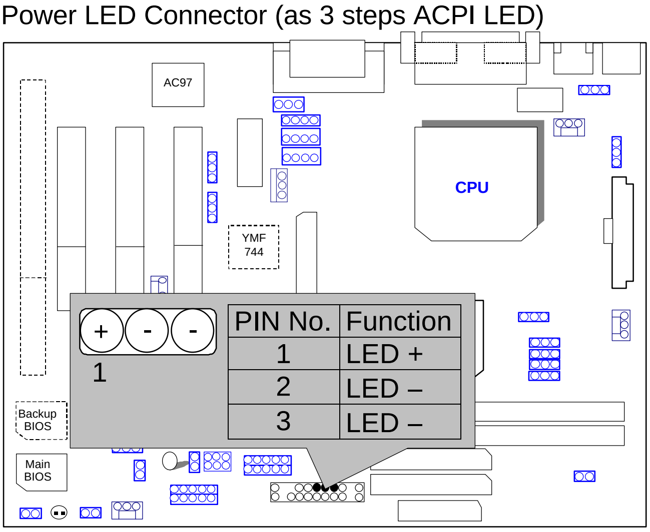


RES : Reset Switch



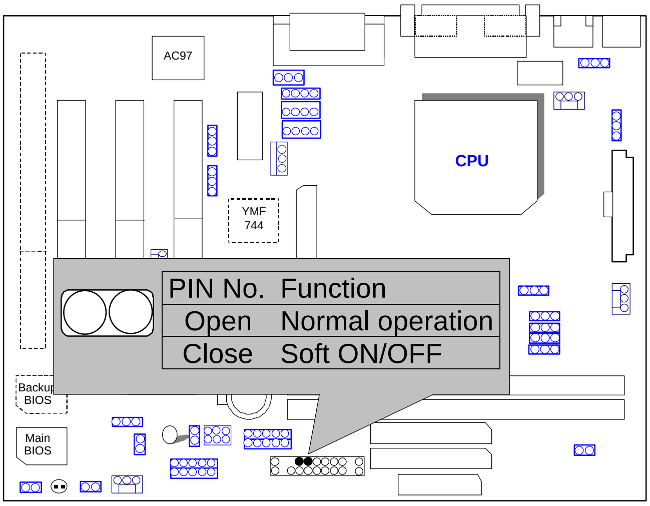
PIN No.	Function
Open	Normal Operation
Close	Reset Hardware System

PWR : Power LED Connector (as 3 steps ACPI LED)



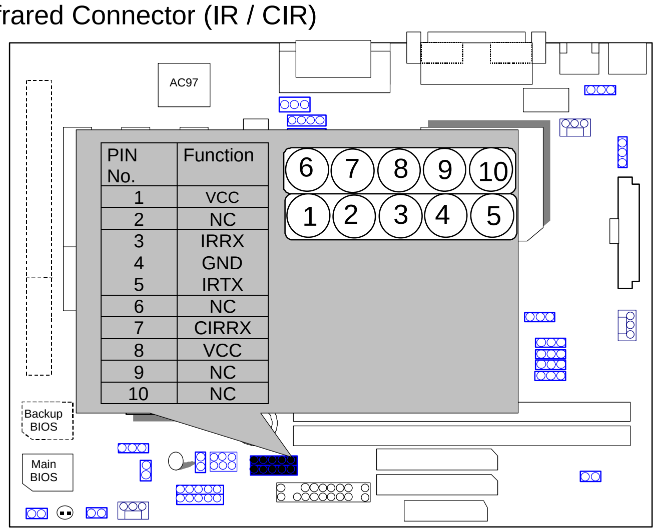
PIN No.	Function
1	LED +
2	LED –
3	LED –

PW: Soft Power Connector



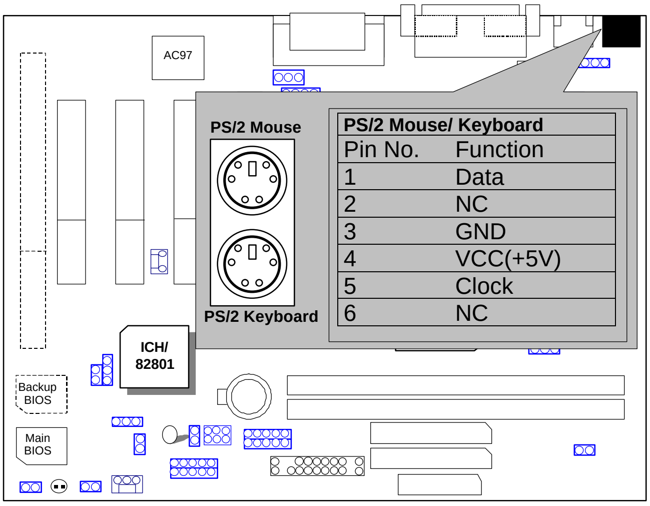
PIN No.	Function
Open	Normal operation
Close	Soft ON/OFF

IR : Infrared Connector (IR / CIR)

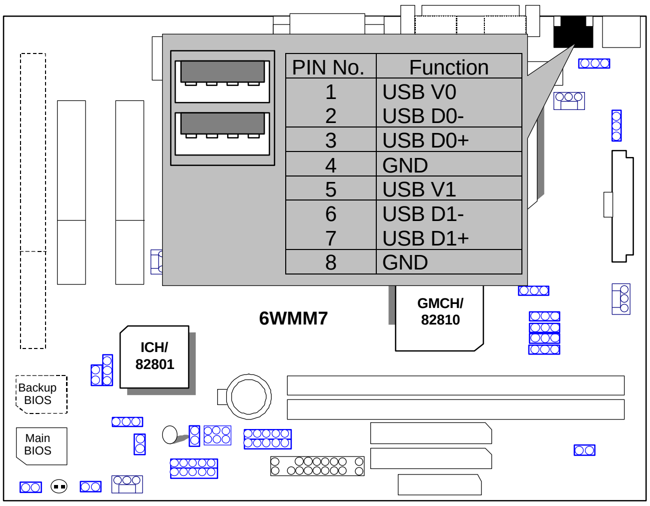


PIN No.	Function
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
6	NC
7	CIRRX
8	VCC
9	NC
10	NC

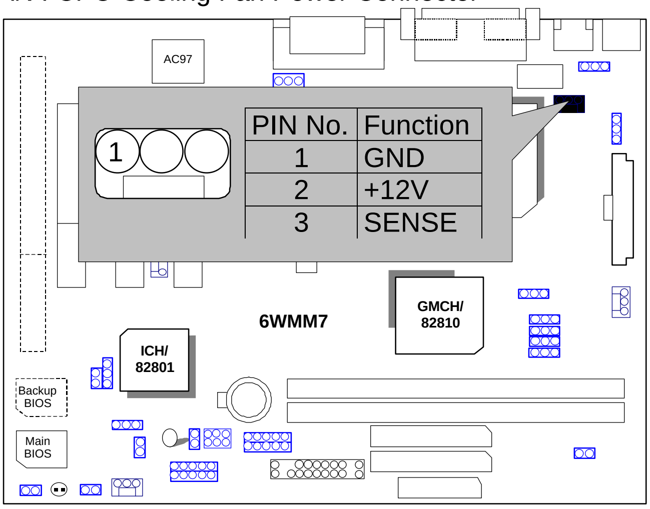
PS/2 Mouse / Keyboard Connector



USB : USB Port

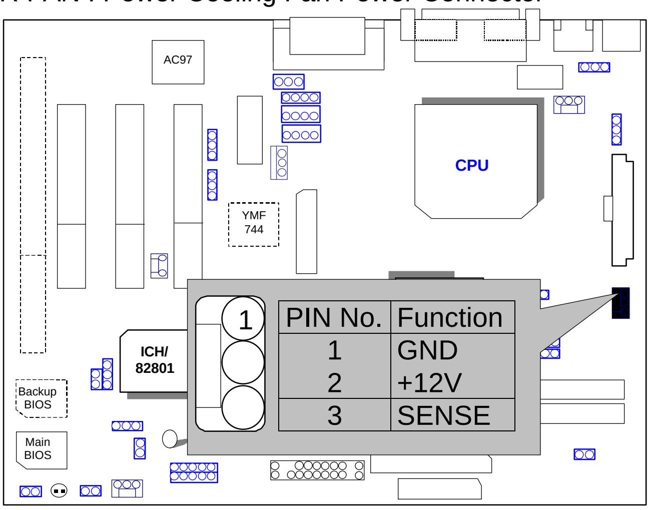


CPU FAN : CPU Cooling Fan Power Connector



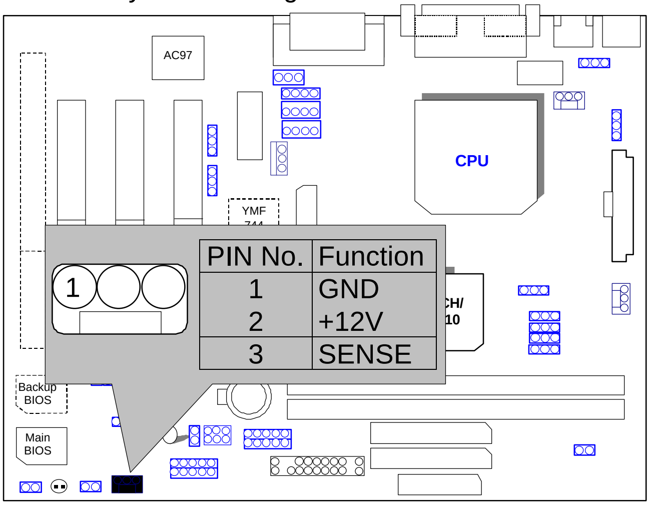
PIN No.	Function
1	GND
2	+12V
3	SENSE

POWER FAN : Power Cooling Fan Power Connector



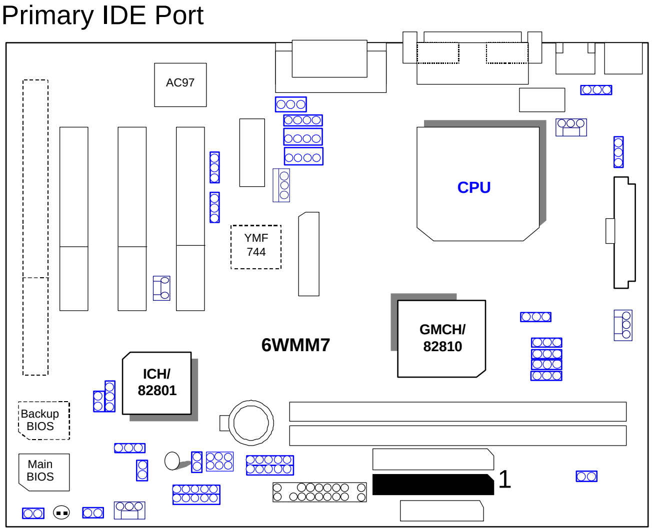
PIN No.	Function
1	GND
2	+12V
3	SENSE

SYSTEM FAN : System Cooling Fan Power Connector

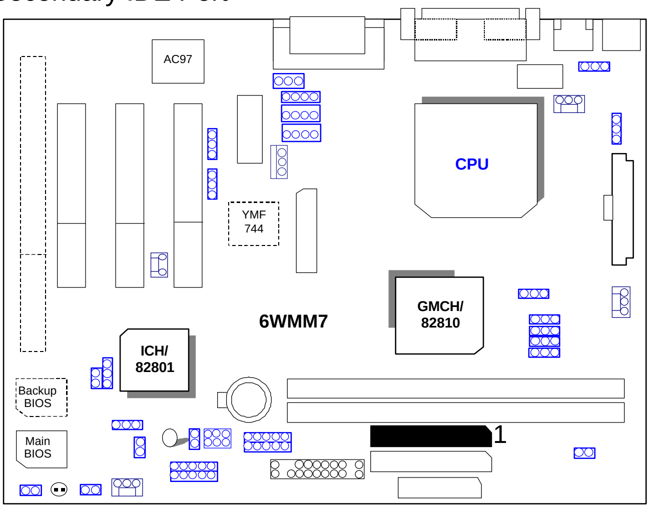


PIN No.	Function
1	GND
2	+12V
3	SENSE

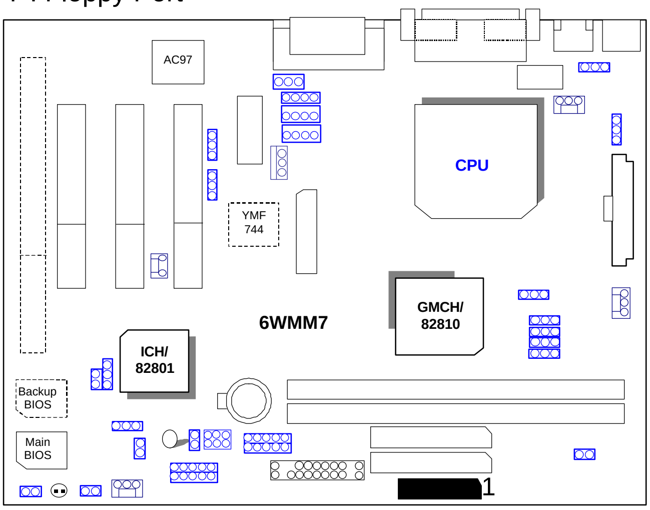
IDE1: Primary IDE Port



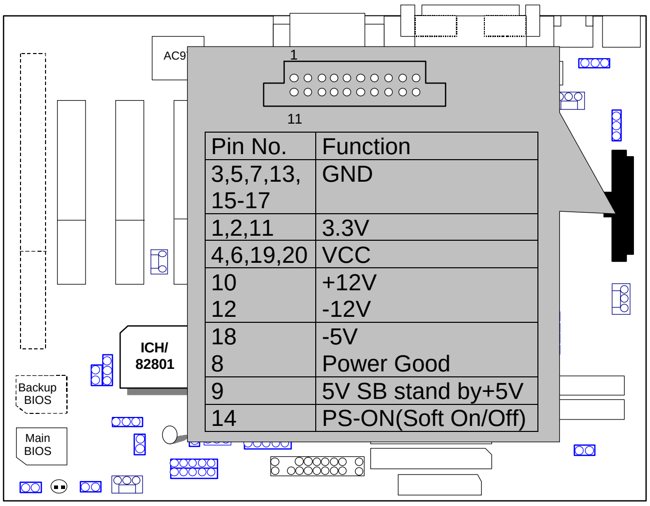
IDE2: Secondary IDE Port



FLOPPY : Floppy Port

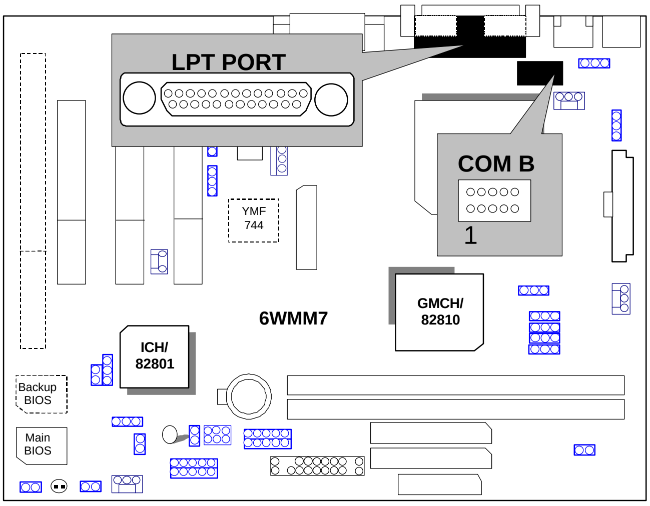


ATX POWER : ATX Power Connector

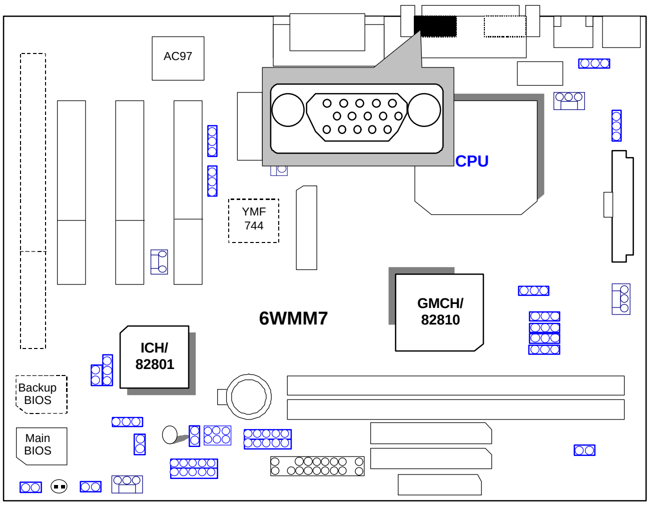


Pin No.	Function
3,5,7,13, 15-17	GND
1,2,11	3.3V
4,6,19,20	VCC
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB stand by+5V
14	PS-ON(Soft On/Off)

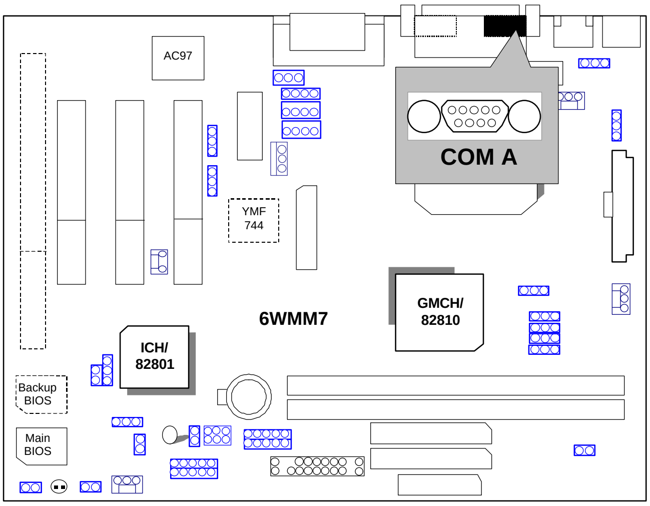
COM B / LPT Port



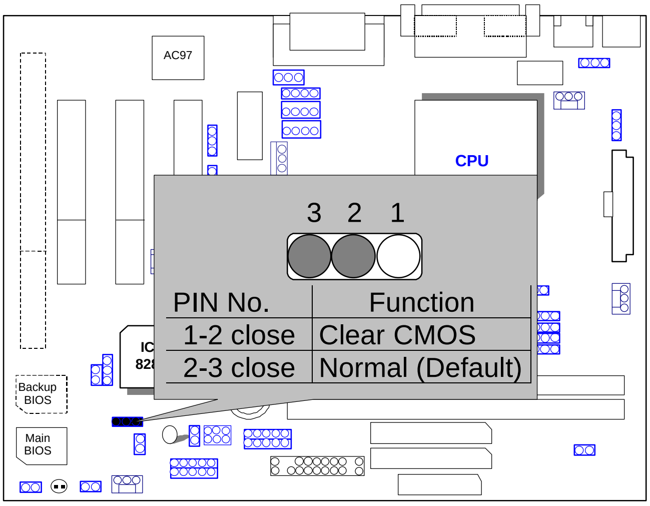
VGA : VGA Port



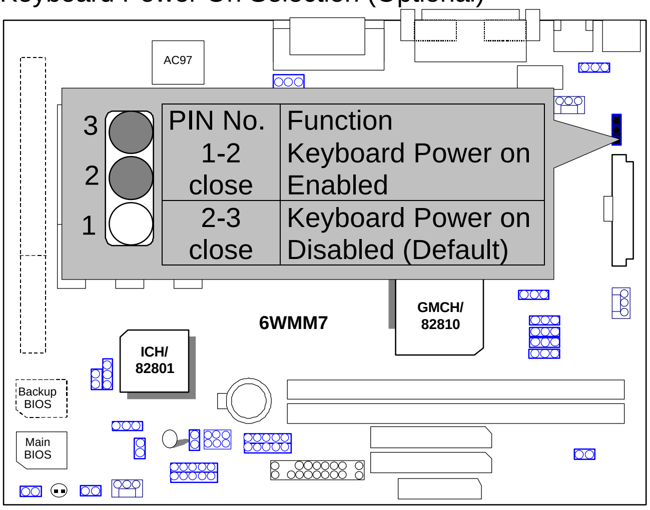
COM A : COM A Port



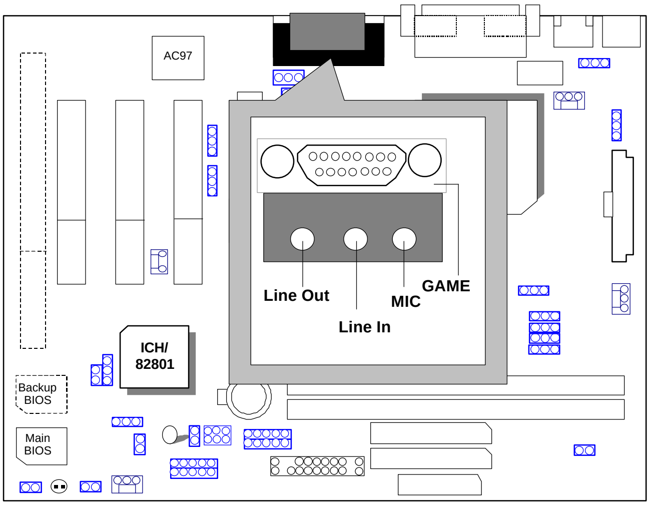
JP3:Clear CMOS Function



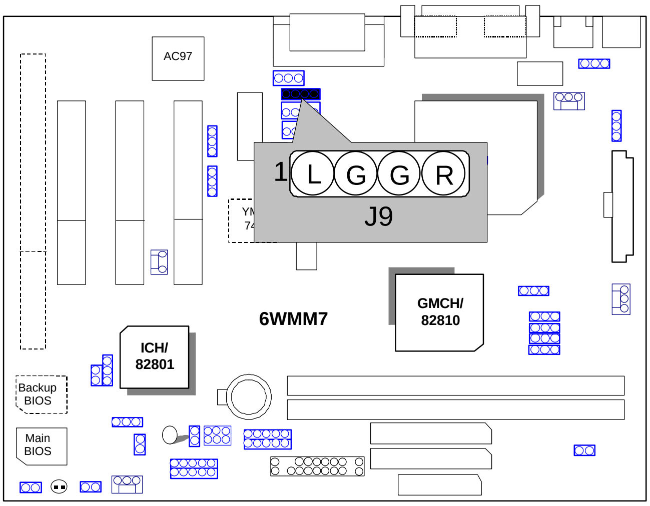
JP13 : Keyboard Power On Selection (Optional)



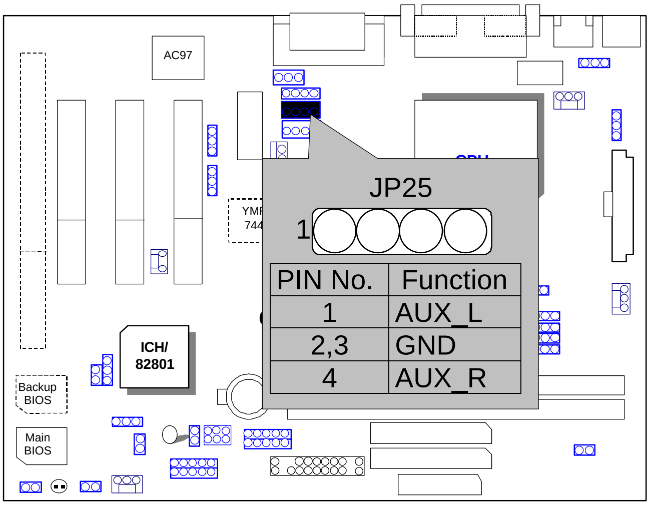
J8:GAME & AUDIO PORT



J9:CD Audio Line In

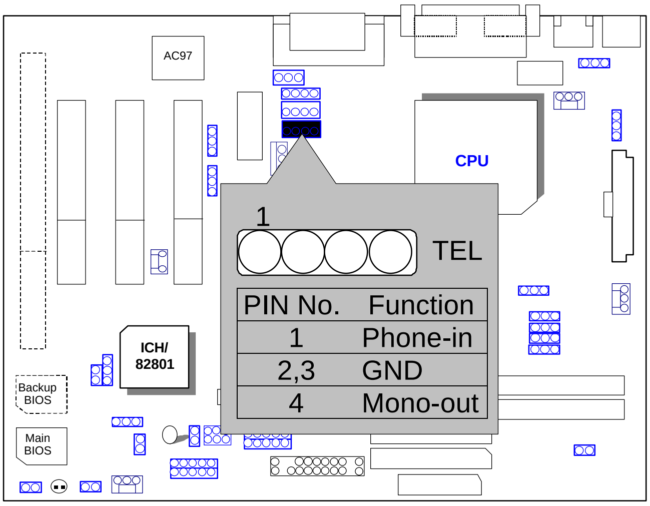


JP25:AUX_IN



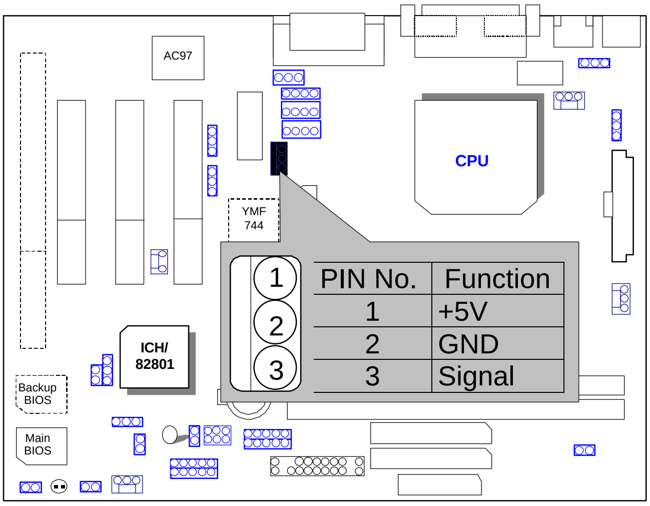
PIN No.	Function
1	AUX_L
2,3	GND
4	AUX_R

JP16 TEL :The connector is for Modem with internal voice connector.

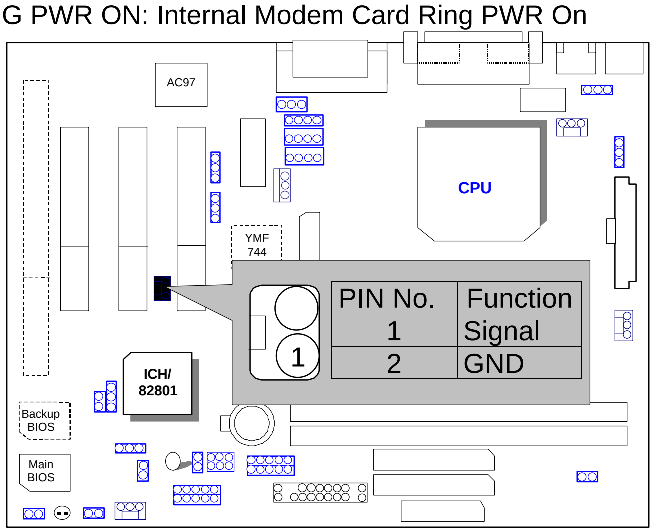


PIN No.	Function
1	Phone-in
2,3	GND
4	Mono-out

J3: Wake on LAN

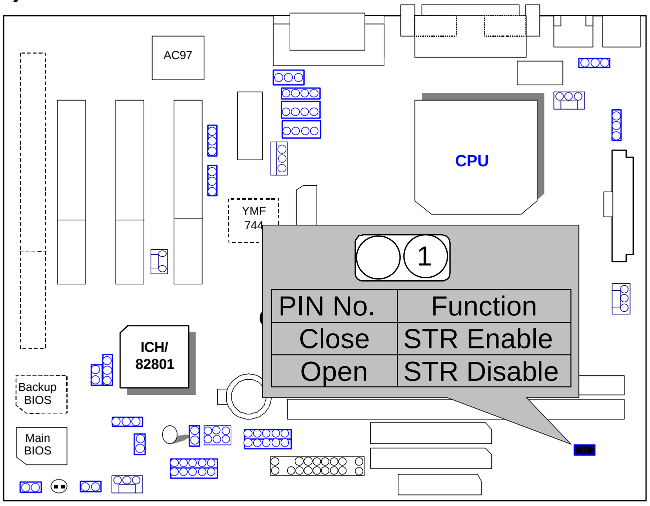


J6 RING PWR ON: Internal Modem Card Ring PWR On

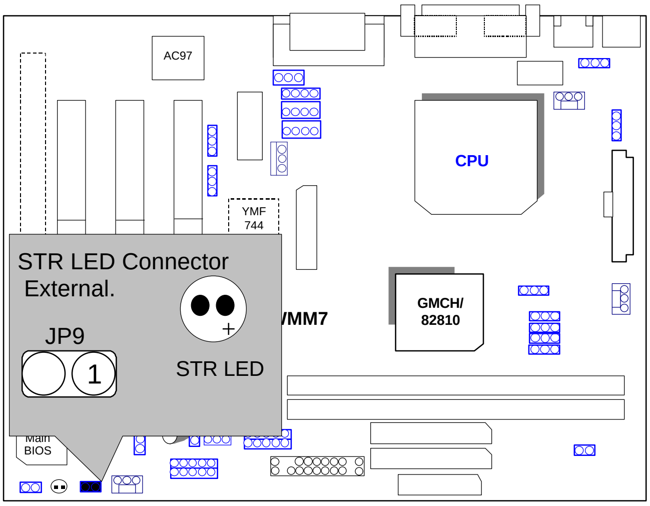


JP11 Close : STR Enable

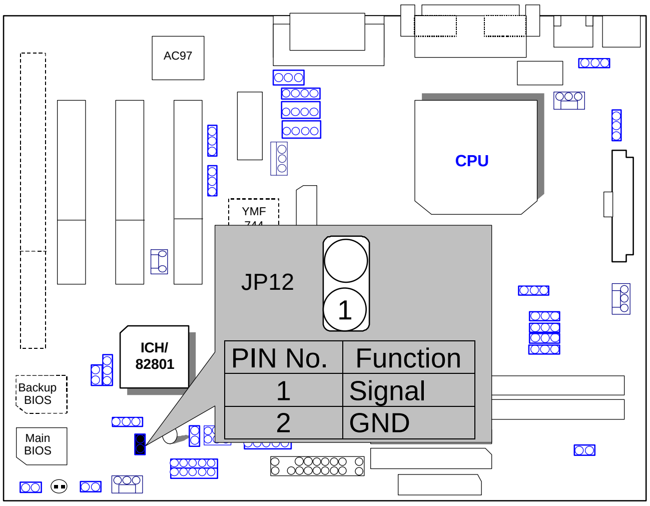
(If you want to use STR Function, please set jumper JP11 Closed.)



JP9 : STR LED CONN.

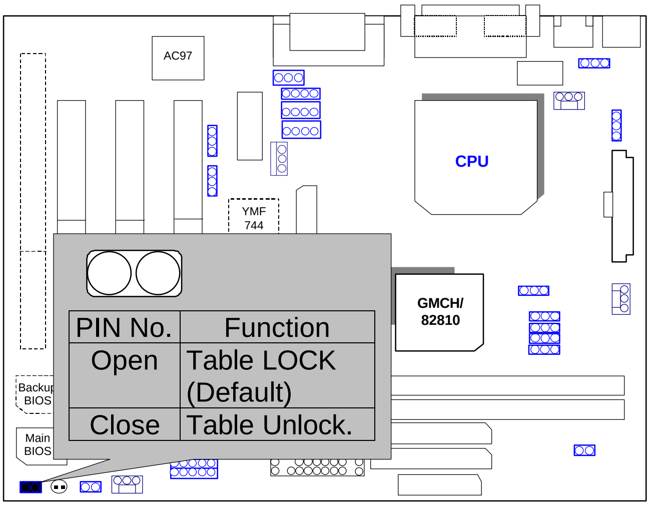


JP12 : CASE OPEN



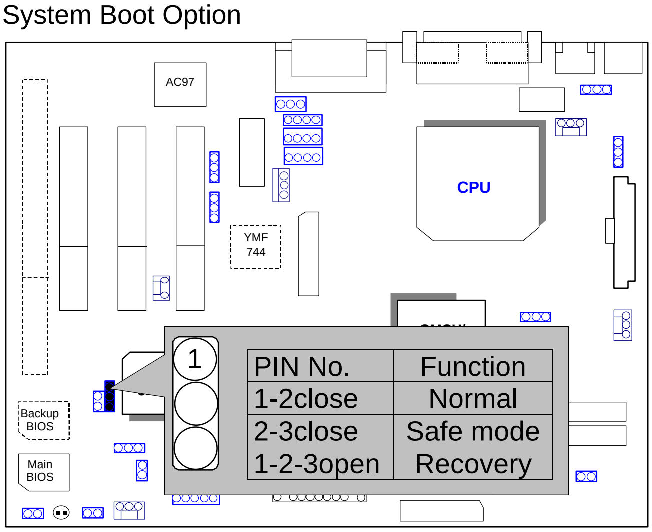
PIN No.	Function
1	Signal
2	GND

JP2: TABLE LOCK



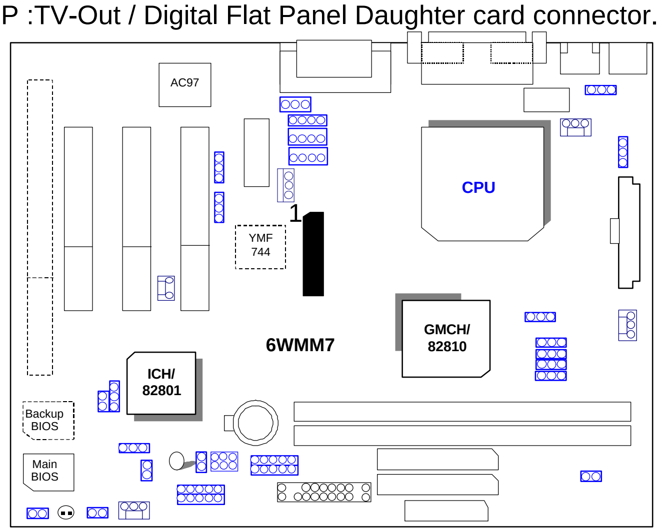
PIN No.	Function
Open	Table LOCK (Default)
Close	Table Unlock.

JP26 : System Boot Option

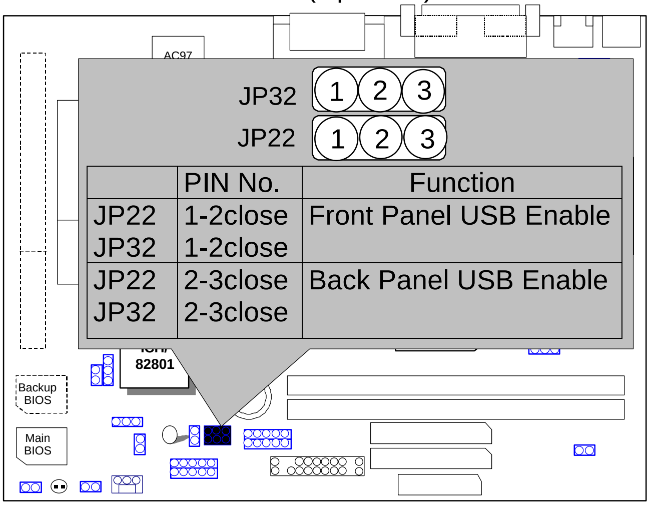


PIN No.	Function
1-2close	Normal
2-3close	Safe mode
1-2-3open	Recovery

TV/DFP :TV-Out / Digital Flat Panel Daughter card connector.

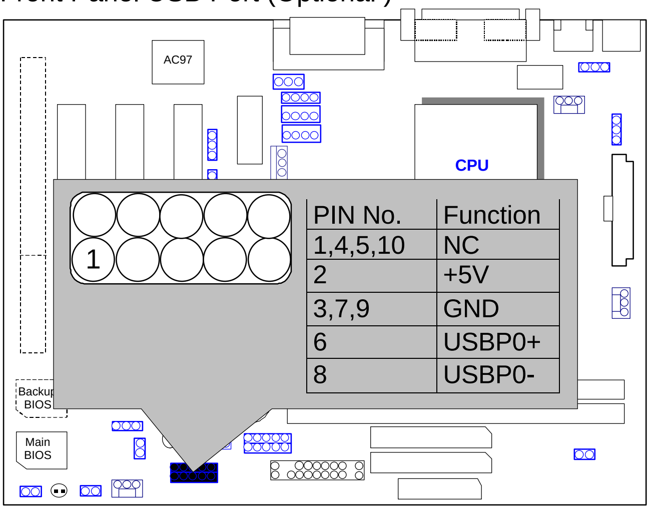


JP32/JP22 : USB Port Selection (Optional)



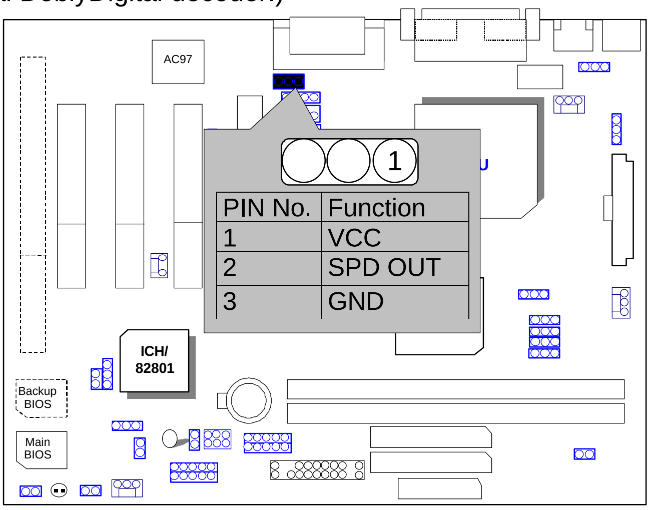
	PIN No.	Function
JP22 JP32	1-2close 1-2close	Front Panel USB Enable
JP22 JP32	2-3close 2-3close	Back Panel USB Enable

JP24 : Front Panel USB Port (Optional)



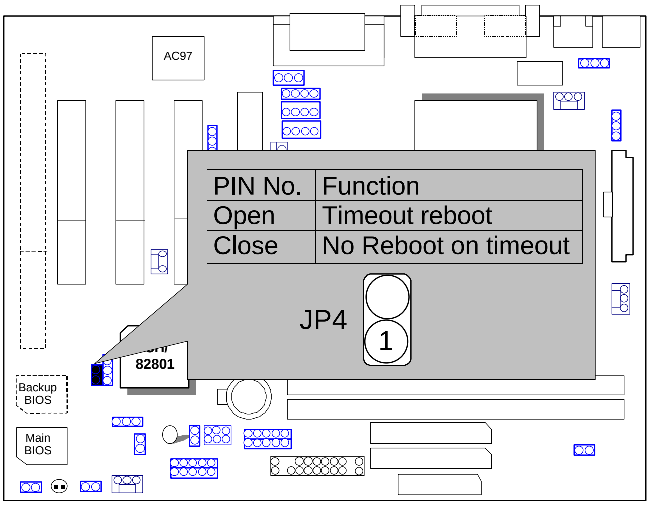
PIN No.	Function
1,4,5,10	NC
2	+5V
3,7,9	GND
6	USBP0+
8	USBP0-

JP28 SPDIF:(Optional , the SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external DoblyDigital decoder.)



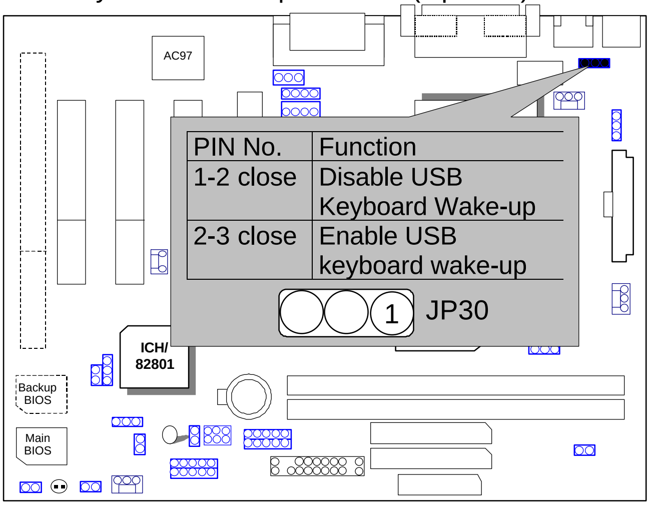
PIN No.	Function
1	VCC
2	SPD OUT
3	GND

JP4: Timeout Reboot Function



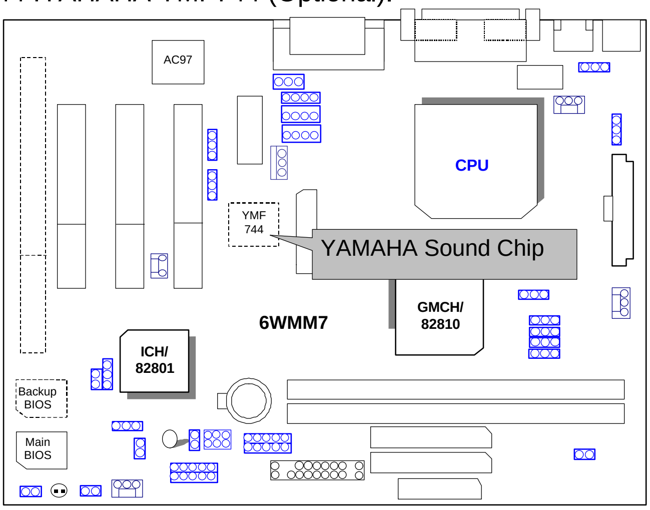
PIN No.	Function
Open	Timeout reboot
Close	No Reboot on timeout

JP30 : USB Keyboard Wake-up Function (Optional)

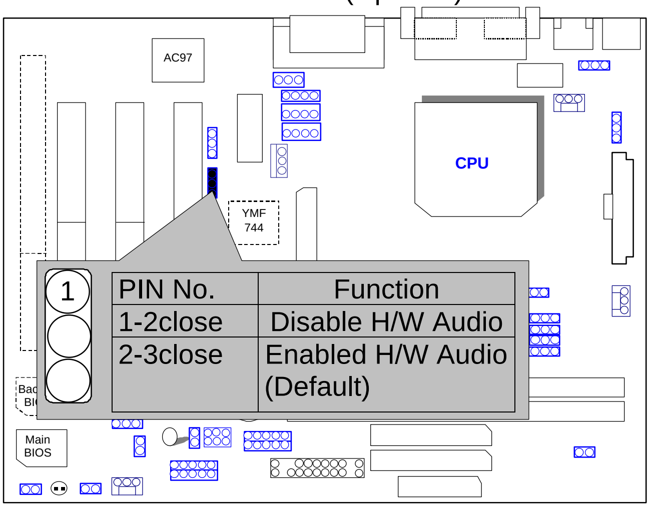


PIN No.	Function
1-2 close	Disable USB Keyboard Wake-up
2-3 close	Enable USB keyboard wake-up

YMF 744 :YAHAHA YMF744 (Optional).

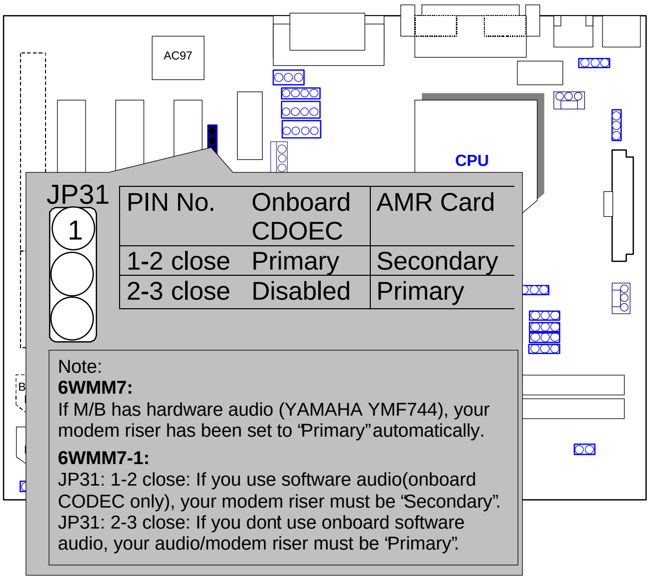


JP27: Onboard H/W Audio Function(Optional).



PIN No.	Function
1-2close	Disable H/W Audio
2-3close	Enabled H/W Audio (Default)

JP31 : AMR (Optional)



PIN No.	Onboard CDOEC	AMR Card
1-2 close	Primary	Secondary
2-3 close	Disabled	Primary

Note:

6WMM7:

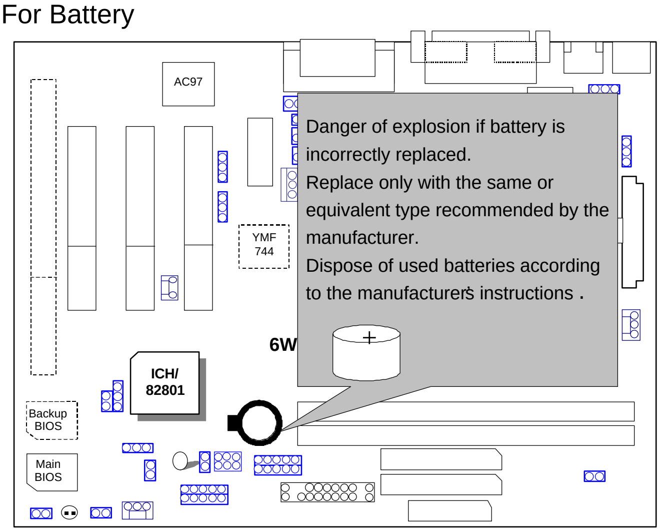
If M/B has hardware audio (YAMAHA YMF744), your modem riser has been set to "Primary" automatically.

6WMM7-1:

JP31: 1-2 close: If you use software audio(onboard CODEC only), your modem riser must be "Secondary".

JP31: 2-3 close: If you dont use onboard software audio, your audio/modem riser must be "Primary".

BAT1:For Battery



Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions .

III. Top Performance Test Setting:

The following performance data list is the testing results of some popular benchmark testing programs.

Users have to modify the value for each item in chipset features as follow

CMOS Setup Utility-Copyright(C) 1984-1999 Award Software
Advanced Chipset Features

		Item Help
SDRAM CAS Latency Time	2	
SDRAM Cycle Time Tras/Trc	5/7	Menu Level ▸
SDRAM RAS-to-CAS Delay	2	
SDRAM RAS Precharge Time	2	
SDRAM Page Closing Policy	Precharge Bank	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Delayed Transaction	Disabled	
On-Chip Video Window Size	64MB	
* Onboard Display Cache Setting *		
Initial Display Cache	Enabled	
Display cache Timing	Fast	

↑↓→ ←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

for top performance setting.

*The above settings have to modify according to different kinds of CPU, SDRAM, and peripherals for your system to work properly.

These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

• CPU	Intel® Celeron™ 466MHz Socket 370 processor
• DRAM	(128x 2) MB SDRAM (WINBOND 852WB W986408BH-8H)
• CACHE SIZE	128 KB included in CPU
• DISPLAY	Onboard Intel Corporation 810 Graphics Controller Hub) (4MB SDRAM)
• STORAGE	Onboard IDE (IBM DTTA-371010)
• O.S.	Windows NT™ 4.0 SPK4
• DRIVER	Display Driver at 1024 x 768 x 64k colors x 75Hz.
	Intel Bus Master IDE Driver 2.05.1 Alpha Release.

Processor	Intel® Celeron™ (Socket 370) 466MHz (66x7)
Winbench99 CPU mark32	834
FPU Winmark	2500
Business Disk	4750
Hi-End Disk	10500
Business Graphics	163
Hi-End Graphics	323
Winstone99 Business	29
Hi-End	28.5

IV. Suspend to RAM Installation

A.1 Introduce STR function:

Suspend-to-RAM (STR) is a Windows 98 ACPI sleep mode function. When recovering from STR (S3) sleep mode, the system is able, in just a few seconds, to retrieve the last "state" of the system before it went to sleep and
recover to that state. The "state" is stored in memory (RAM) before the system goes to sleep. During STR sleep mode, your system uses only enough energy to maintain critical information and system functions, primarily the system state and the ability to recognize various "wake up" triggers or signals, respectively.

A.2 STR function Installation

Please use the following steps to complete the STR function installation.

Step-By-Step Setup

Step 1:

To utilize the STR function, the system must be in Windows 98 ACPI mode.

Putting Windows 98 into ACPI mode is fairly easy.

Setup with Windows 98 CD:

A. Insert the Windows 98 CD into your CD-ROM drive, select Start, and then Run.

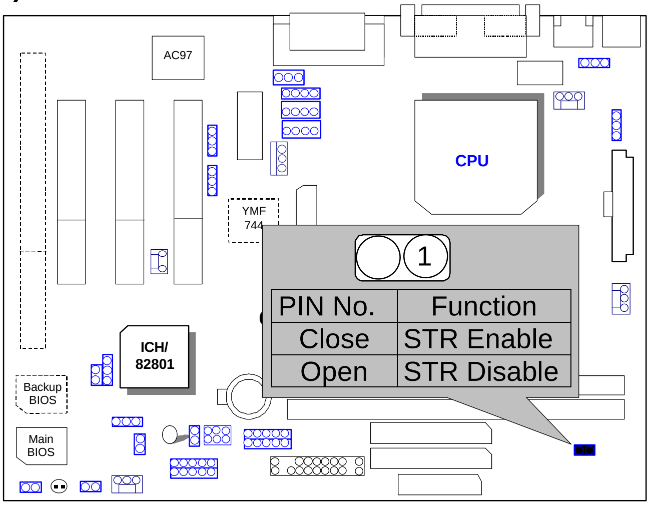
B. Type (without quotes) **"D:\setup /p j"** in the window provided. Hit the enter key or click OK.

C. After setup completes, remove the CD, and reboot your system

(This manual assumes that your CD-ROM device drive letter is D:).

Step 2:

(If you want to use STR Function, please set jumper JP11 Closed.)



PIN No.	Function
Close	STR Enable
Open	STR Disable

Step 3:

Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item **"POWER MANAGEMENT SETUP",** then select **"ACPI Suspend Type: S3 (Suspend to RAM)"**. Remember to save the settings by pressing "ESC" and choose the **"SAVE & EXIT SETUP"** option.

Congratulation! You have completed the installation and now can use the STR function.

A.3 How to put your system into STR mode?

There are two ways to accomplish this:

1. Choose the “Stand by” item in the “Shut Down Windows” area.

   A. Press the “Start” button and then select “Shut Down”

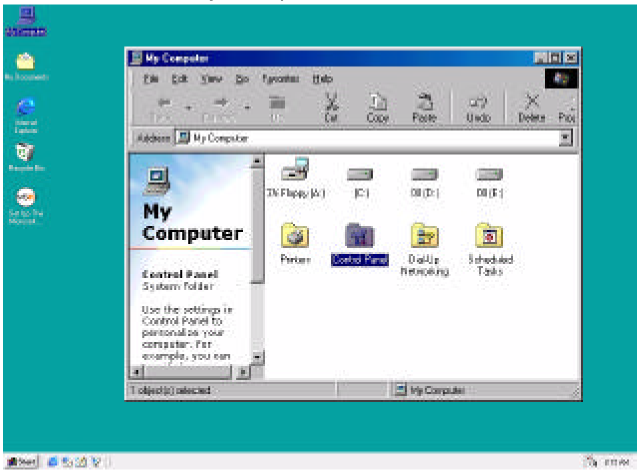


   B. Choose the “Stand by” item and press “OK”

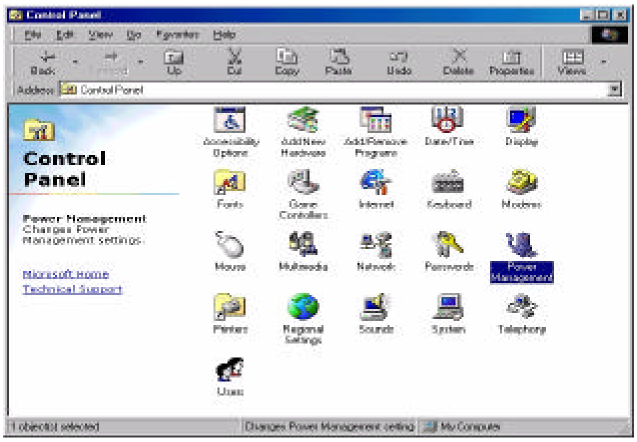


2. Define the system "power on" button to initiate STR sleep mode:

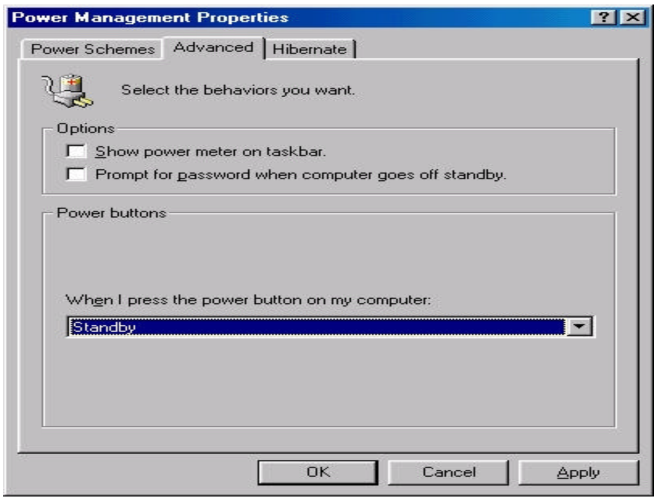
A. Double click "My Computer" and then "Control Panel"



B. Double click the " Power Management" item.



C. Select the “Advanced” tab and “Standby” mode in Power Buttons.



Step 4:

Restart your computer to complete setup.

Now when you want to enter STR sleep mode, just momentarily press the “Power on” button..

A.4 How to recover from the STR sleep mode?

There are six ways to “wake up” the system:

1. Press the “Power On” button.
2. Use the “Keyboard Power On” function.
3. Use the “Mouse Power On” function.
4. Use the “Resume by Alarm” function.
5. Use the “Modem Ring On” function.
6. Use the “Wake On LAN” function.

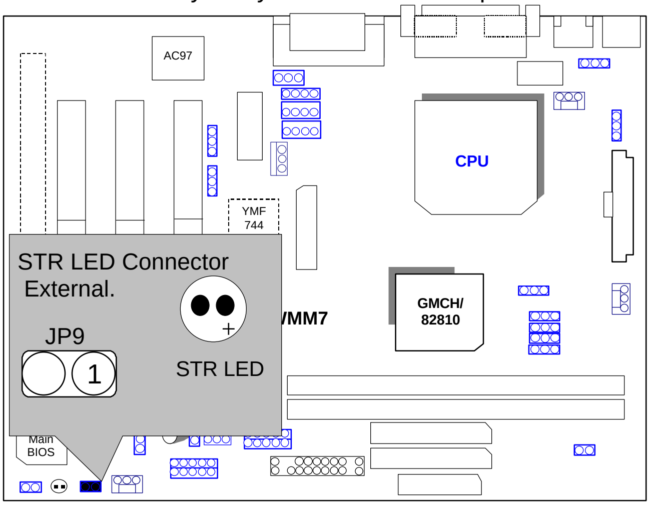
A.5 Notices :

1. In order for STR to function properly, several hardware and software requirements must be satisfied:

   A. Your ATX power supply must comply with the ATX 2.01 specification (provide more than 720 mA 5V Stand-By current).

   B. Your SDRAM must be PC-100 compliant.

2. Jumper JP9 is provided to connect to the STR LED in your system chassis. [Your chassis may not provide this feature.] The STR LED will be illuminated when your system is in STR sleep mode.



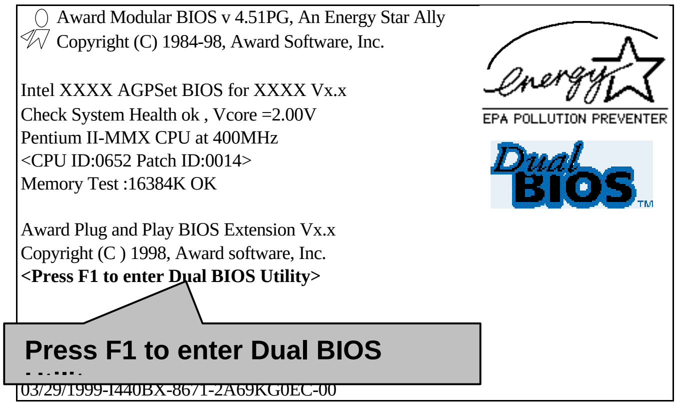
V. Introduce Dual BIOS (Optional)

A. What is Dual BIOS Technology?

Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS. Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

B. How to use Dual BIOS?

a. Boot Screen



b. Dual BIOS Utility

```
              Dual BIOS Utility V6.60.g.01K
        (C) 1999, Gigabyte Technology Co., LTD.

Wide Range Protection                 :Disabled
Halt On BIOS Defects                  :Disabled
Auto Recovery                         :Enabled
Boot From                             :Main BIOS
BIOS Recovery                         :Main to Backup

F3: Load Default            F5:Start BIOS Recovery
F7: Save And Restart        F9:Exit Without Saving

Use <Space> key to toggle setup
```

c. Dual BIOS Item explanation:

Wide Range Protection: Disabled(Default), Enabled

Status 1:

If any failure (ex. Update ESCD failure, checksum error or reset…). occurs in the Main BIOS , just before the Operating System is loaded and after the power is on, and that the Wide Range Protection is set to "Enable", the PC will boot from Backup BIOS automatically.

Status 2:

If the ROM BIOS on peripherals cards(ex. SCSI Cards, LAN Cards,..) emits signals to request restart of the system after the user make any alteration on it, the boot up BIOS will not be changed to the Backup BIOS.

Halt On BIOS Defects : Disabled(Default), Enabled

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On BIOS Defects set to Enable, the PC will show messages on the boot screen, and the system will pause and wait for the user' s instruction.

If Auto Recovery :**Disabled**, it will show ***<or the other key to continue.>***

If Auto Recovery :**Enabled**, it will show ***<or the other key to Auto Recover.>***

Auto Recovery : Enabled(Default), Disabled

When one of the Main BIOS or Backup BIOS occurs checksum failure, the working BIOS will automatically recover the BIOS of checksum failure.

(In the Power Management Setup of the BIOS Setting, if ACPI Suspend Type is set to Suspend to RAM, the Auto Recovery will be set to Enable automatically.)

(If you want to enter the BIOS setting, please press **"Del"** key when the boot screen appears.)

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

The user can set to boot from main BIOS or Backup BIOS.

Status 2:

If one of the main BIOS or the Backup BIOS fails, this item *"Boot From : Main BIOS(Default)"* will become gray and will not be changed by user.

BIOS Recovery : Main to Backup

Auto recovery message:

BIOS Recovery: Main to Backup

The means that the Main BIOS works normally and could automatically recover the Backup BIOS.

BIOS Recovery: Backup to Main

The means that the Backup BIOS works normally and could automatically recover the Main BIOS.

(This auto recovery utility is set by system automatically and can' t be changed by user.)

DualBIOS™ Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS. This newest "Value-added" feature, in a long series of innovations from GIGABYTE, is available on GA-6WMM7 motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

What' s DualBIOS™?

On GIGABYTE motherboards with DualBIOS there are physically two BIOS chips. For simplicity we' ll call one your "Main BIOS" and the other we' ll call your "Backup" BIOS (your "hot spare"). If your Main BIOS fails, the Backup BIOS almost automatically takes over on your next system boot. Almost automatically and with virtually zero down time! Whether the problem is a failure in flashing your BIOS or a virus or a catastrophic failure of the Main BIOS chip, the result is the same - the Backup BIOS backs you up, almost automatically.

I. Q: What is DualBIOS™ technology?

Answer:

DualBIOS technology is a patented technology from Giga-Byte Technology. The concept of this technology is based on the redundancy and fault tolerance theory. DualBIOS™ technology simply means there are two system BIOSes (ROM) integrated onto the motherboard. One is a main BIOS, and the other is a backup BIOS. The mainboard will operate normally with the main BIOS, however, if the main BIOS is corrupt or damaged for various reasons, the backup BIOS will be automatically used when the system powered-On. Your PC will operate as before the main BIOS was damaged, and is completely transparent to the user.

II. Q: Why does anyone need a motherboard with DualBIOS™ technology?

Answer:

In today' s systems there are more and more BIOS failures. The most common reasons are virus attacks, BIOS upgrade failures, and/or deterioration of the BIOS (ROM) chip itself.

1. New computer viruses are being found that attack and destroy the system BIOS. They may corrupt your BIOS code, causing your PC to be unstable or even not boot normally.
2. BIOS data will be corrupted if a power loss/surge occurs, or if a user resets the system, or if the power button is pressed during the process of performing a system BIOS upgrade.
3. If a user mistakenly updates their mainboard with the incorrect BIOS file, then the system may not be able to boot correctly. This may cause the PC system hang in operation or during boot.
4. A flash ROM's life cycle is limited according to electronic characteristics. The modern PC utilizes the Plug and Play BIOS, and is updated regularly. If a user changes peripherals often, there is a slight chance of damage to the flash ROM.

With Giga-Byte Technology' s patented DualBIOS™ technology you can reduce the possibility of hangs during system boot up, and/or loss BIOS data

due to above reasons. This new technology will eliminate valuable system down time and costly repair bills cause by BIOS failures.

III. Q: How does DualBIOS™ technology work?

Answer:

1. DualBIOS™ technology provides a wide range of protection during the boot up procedure. It protects your BIOS during system POST, ESCD update, and even all the way to PNP detection/assignment.
2. DualBIOS™ provides automatic recovery for the BIOS. When the first BIOS used during boot up does not complete or if a BIOS checksum error occurs, boot-up is still possible. In the DualBIOS™ utility, the "Auto Recovery" option will guarantee that if either the main BIOS or backup BIOS is corrupted, the DualBIOS™ technology will use the good BIOS and correct the wrong BIOS automatically.
3. DualBIOS™ provides manual recovery for the BIOS. DualBIOS™ technology contains a built-in flash utility, which can flash your system BIOS from backup to main and/or visa versa. There is no need for an OS-dependent flash utility program.
4. DualBIOS™ contains a one-way flash utility. The built-in one-way flash utility will ensure that the corrupt BIOS is not mistaken as the good BIOS during recovery and that the correct BIOS (main vs. backup) will be flashed. This will prevent the good BIOS from being flashed.

IV. Q: Who Needs DualBIOS™ technology?

Answer:

1. Every user should have DualBIOS™ technology due to the advancement of computer viruses.
   Everyday, there are new BIOS-type viruses discovered that will destroy your system BIOS. Most commercial products on the market do not have solutions to guard against this type of virus intrusion. The DualBIOS™ technology will provide a state-of-the-art solution to protect your PC:
   Case I.) Vicious computer viruses may wipe out your entire system BIOS. With a conventional single system BIOS PC, the PC will not be functional until it is sent for repairs.
   Case II.) If the "Auto Recovery" option is enabled in the DualBIOS™ utility, and if a virus corrupts your system BIOS, the backup BIOS will automatically reboot the system and correct the main BIOS.
   Case III.) A user may override booting from the main system BIOS. The

DualBIOS™ utility may be entered to manually change the boot sequence to boot from the backup BIOS.

2. During or after a BIOS upgrade, if DualBIOS™ detects that the main BIOS is corrupt, the backup BIOS will take over the boot-up process automatically. Moreover, it will verify the main and backup BIOS checksums when booting-up. DualBIOS™ technology examines the checksum of the main and backup BIOS while the system is powered on to guarantee your BIOS operates properly.
3. Power Users will have the advantage of having two BIOS versions on their mainboard. The benefit is being able to select either version BIOS to suit the performance system needs.
4. Flexibility for high-end desktop PCs and workstation/servers. In the DualBIOS™ utility, the option can be set, "Halt On When BIOS Defects," to be enabled to halt your system with a warning message that the main BIOS has been corrupted. Most workstation/servers require constant operation to guarantee services have not been interrupted. In this situation, the "Halt On When BIOS Defects" message may be disabled to avoid system pauses during normal booting. Another advantage you gain from Giga-Byte' s DualBIOS™ technology is the ability to upgrade from dual 2 Mbit BIOS to dual 4 Mbit BIOS in the future if extra BIOS storage is need.